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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,122	04/02/2004	Zhihang Li	41575-270	1510
29493	7590	06/27/2007		
HUSCH & EPPENBERGER, LLC			EXAMINER	
190 CARONDELET PLAZA			JOYCE, WILLIAM C	
SUITE 600				
ST. LOUIS, MO 63105-3441			ART UNIT	PAPER NUMBER
			3682	
			MAIL DATE	DELIVERY MODE
			06/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/817,122

Applicant(s)

LI ET AL.

Examiner

William C. Joyce

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 5,6,10,11,17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,7-9 and 12-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date: _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This Office Action is in response to the Election filed May 21, 2007 for the above identified patent application.

#### ***Election/Restrictions***

1. Claims 5, 6, 10, 11, 17, and 18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 21, 2007.

#### ***Information Disclosure Statement***

2. The information disclosure statement filed 7/9/2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. DE 1013593 has been placed in the application file, but the information referred to therein has not been considered.

#### ***Specification***

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract

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on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the implied phrases "The invention is" (line 1), "The present invention comprises" (line 2), and "The present invention comprises" (line 4) must be deleted from the abstract. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by DeVara et al. (USP 4,931,710).

DeVara et al. discloses an actuator comprising: a housing (12, 14), wherein said housing further comprises a thrust support for supporting the motor; an electric motor (36) disposed in said housing, wherein said motor further comprises a shaft (38); a worm gear (40) operatively connected to said motor; a gear train disposed in said housing, said gear train comprising a set of spur gears, wherein said worm gear drives

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at least one of said spur gears; an output gear (60) disposed in said housing, wherein at least one of said spur gears drives said output gear; and a driver (34) operatively connected to said output gear, a sensor gear (64) wherein said output gear drives said sensor gear.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 4, 7-9, 14, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeVara et al. (USP 4,931,710) in view of Wang (USP 5,816,079).

DeVara et al. does not disclose an optical encoder connected to a sensor gear, but teaches a potentiometer being connected to the sensor gear. However, it was known in the art to connect an optical encoder to a sensor gear for determining a position of an output member. For example, the prior art to Wang teaches an optical encoder (1) connected to a gear wheel (2) for determining a position of an output member (26). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the potentiometer of DeVara et al. with an optical encoder, motivation being to provide a relatively simple and inexpensive means for accurately detecting the position of the output gear.

Alternatively, it would have been obvious to one in the art to replace potentiometer sensing device of DeVara et al. with an optical sensing device, as taught by Wang, since the examiner takes Official Notice of the equivalence of the potentiometer and optical sensing devices for their use in the sensing art and the selection of any of these known equivalents would have been within the level of ordinary skill.

With respect to the limitations defining the optical sensor being connected to a printed circuit board, DeVara et al. illustrates in Figure 6 the known technique of connecting a sensor (68) to a circuit board (66).

### ***Conclusion***

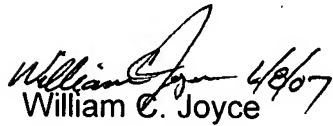
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Note the gearing arrangement of Sorsa et al. ('305) and Shinmura ('400).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (571) 272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
William C. Joyce